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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/785,654	02/24/2004	Bruce Jeffrey Clingerman	GP-303559	2701

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EXAMINER
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ONEILL, KARIE AMBER

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 08/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/785,654

Applicant(s)

CLINGERMAN ET AL.

Examiner

Karie O'Neill

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 24 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 10-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-21 are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Election/Restrictions*

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-17, drawn to a fuel cell system, classified in class 429, subclass 26.
  - II. Claims 18-21, drawn to a method for controlling the relative humidity of a fuel cell, classified in class 429, subclass 34.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions II and I are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another and materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the method of the claimed invention can be used to make more than one fuel cell system.
3. Because these inventions are independent or distinct for the reasons given above and have acquired a separate status in the art in view of their different classification, restriction for examination purposes as indicated is proper.
4. **If Group I is elected, an election of species must also be made:**
  - I-1: Claims 1-9 are drawn to a fuel cell system with a two-position valve that helps to provide humidity control.

I-2: Claims 10-17 are drawn to a fuel cell with a fixed restriction valve responsive to the cathode exhaust flow.

5. Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, no claims are generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which depend from or otherwise require all the limitations of an allowable generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

6. During a telephone conversation with Charles Ellerbrock on July 28, 2006 a provisional election was made with traverse to prosecute the invention of Group I, species I-1: claims 1-9. Affirmation of this election must be made by applicant in replying to this Office action. Claims 10-21 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

7. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

***Claim Rejections - 35 USC § 112***

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear what a "leak path" is, but it has been recited by the examiner to mean a line or conduit which would provide gas flow to a valve.

***Claim Rejections - 35 USC § 102***

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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11. Claims 1 and 4 are rejected under 35 U.S.C. 102(e) as being anticipated by Voss et al. (US 2004/0258968 A1).

With regard to Claim 1, Voss et al. discloses in Figure 1, a fuel cell system (12) comprising: a compressor (16) for generating compressed air flow (paragraph 0026); a fuel cell stack responsive to the compressed air flow and generating a cathode exhaust gas flow (24) (paragraph 0027); and (in Figure 6) a by-pass valve (102), inserted into the exhaust gas flow path, responsive to the exhaust gas flow, wherein the valve is selectively opened from a normally closed position under conditions where the temperature of the gas flow exiting the compressor is lower than the temperature of the exhaust gas flow (paragraph 0037) to provide humidity control.

With regard to Claim 4, Voss et al. discloses a controller controlling the position of the valve in response to the operating temperature of the system (paragraph 0037).

### ***Claim Rejections - 35 USC § 103***

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 2, 3, 5 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Voss et al., as applied to Claims 1 and 4 above, in view of Pospichal et al. (US 2005/0164057 A1).

Voss et al. discloses the fuel cell system in paragraph 11 above, but does not disclose the system comprising a fixed restriction valve in parallel with the two-position valve, said fixed restriction valve also being responsive to the exhaust gas flow, said fixed restriction valve providing a predetermined cathode exhaust gas back-pressure when the two-position valve is closed, wherein the two-position valve includes leak paths to allow the exhaust gas to flow there through when the two-position valve is closed, wherein a controller prevents rapid switching of the two-position valve, and wherein the fuel cell system is on a vehicle.

With regard to Claim 2, Pospichal et al. discloses in Figure 2 and paragraph 0020, a by-pass valve (30) positioned in parallel with the backpressure valve (24) in the cathode exhaust line (26) which can be opened to completely eliminate the output pressure of the cathode exhaust. Therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to incorporate a second valve in parallel to the first valve into the system of Voss et al., because Pospichal et al. teaches that a second valve is needed to help control stack pressure and membrane humidity.

With regard to Claim 3, and as is best understood by the examiner, Pospichal et al. discloses in Figure 2, a conduit or exhaust gas line running to the by-pass valve (30) which is in parallel to the back-pressure valve (24), can be opened to help eliminate exhaust gases when the back pressure valve is in the closed position (paragraph 0020). Therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to include leak paths or exhaust conduits into the system of Voss et al.,

because Pospichal et al. teaches that eliminating excess gas can help eliminate surge conditions in the fuel cell.

With regard to Claim 5, Pospichal et al. discloses the controller controlling the open and closed positions or switching of the by pass valve (paragraphs 0021 and 0022). Therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to have a controller controlling the valves in the system of Voss et al., because Pospichal et al. teaches the controller controlling operational parameters of the system so as to eliminate surge conditions in the fuel cell.

With regard to Claim 9, Pospichal et al. discloses the fuel cell system in a vehicle (paragraph 0004). Therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to the system of Voss et al. in a vehicle, because Pospichal et al. teaches that such vehicles would be more efficient and generate fewer emissions than vehicles with internal combustion engines.

14. Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Voss et al., as applied to Claims 1 and 4 above, in view of Russell et al. (US 6,378,484 B1).

Voss et al. discloses the fuel cell system in paragraph 11 above, but does not disclose the system wherein the two-position valve has a relatively slow transition time so as to prevent rapid changes between the open and closed position, wherein the valve has about a 500ms transition time and wherein the slow transition time is provided by one of a mechanical dash-pot or electrical control.

Russell et al. discloses in column 8 lines 25-30, valve timing being modified and controlled to further reduce the transition time. Therefore, at the time of the invention it



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would have been obvious to one of ordinary skill in the art to use a valve with a relatively slow transition time in the system of Voss et al., because Russell teaches controlling the valve depending upon the particular applications of the valve. It would have been obvious to have a slow transition time and not to have abrupt changes in pressure between the fuel cell chamber and exhaust lines because it could be detrimental on the system. It is also the position of the examiner that the criticality of the specific transition time and the control of the transition time do not provide patentable distinction.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karie O'Neill whose telephone number is (571) 272-8614. The examiner can normally be reached on Monday through Friday from 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Karie O'Neill  
Examiner  
Art Unit 1745

KAO

A handwritten signature in black ink, appearing to read 'Dai-Wei Yuan', with a stylized flourish at the end.

**DAI-WEI YUAN**  
**PRIMARY EXAMINER**